

WHAT IS CLAIMED IS:

1. A method for transmitting information via a transmission medium,
comprising:
 - 5 receiving first information represented according to a first number system of a first order;
order;
converting the first information to second information, the second information being represented according to a second number system of a second order, the second order being greater than the first order;
10 representing the second information using a first number of unique signal characteristics, the first number corresponding to the second order; and
transmitting the second information via the transmission medium.
 2. The method of claim 1 wherein the first number system is a binary number
15 system.
 3. The method of claim 2 wherein the second number system is a ternary number system.
 - 20 4. The method of claim 2 wherein the second number system is a quaternary number system.
 5. The method of claim 2 wherein the second number system is a hexadecimal number system.

6. The method of claim 2 wherein the second number system comprises an n^{th} order number system where n is greater than or equal to three.

7. The method of claim 1 wherein each of the unique signal characteristics
5 comprises a unique frequency.

8. The method of claim 1 wherein the transmission medium comprises a wide area network.

9. The method of claim 1 wherein at least a portion of the transmission medium
10 comprises telephone transmission lines.

10. A method for receiving information transmitted via a transmission medium,
comprising:

15 receiving first information via the transmission medium, the first information being represented and transmitted using a first number of signal characteristics;

converting representation of the first information to a first number system of a first order, the first order corresponding to the first number; and

20 converting the first information to second information, the second information being represented according to a second number system of a second order, the second order being less than the first order.

11. The method of claim 10 wherein the second number system is a binary number system.

12. The method of claim 11 wherein the first number system is a ternary number system.

13. The method of claim 11 wherein the first number system is a quaternary
5 number system.

14. The method of claim 11 wherein the first number system is a hexadecimal number system.

10 15. The method of claim 11 wherein the first number system comprises an n^{th} order number system where n is greater than or equal to three.

16. The method of claim 10 wherein each of the unique signal characteristics comprises a unique frequency.

15 17. The method of claim 10 wherein the transmission medium comprises a wide area network.

18. The method of claim 10 wherein at least a portion of the transmission
20 medium comprises telephone transmission lines.

19. A system for transmitting information via a transmission medium, comprising a transmitting station configured to receive first information represented according to a first number system of a first order, convert the first information to second information, the
25 second information being represented according to a second number system of a second

order, the second order being greater than the first order, represent the second information using a first number of unique signal characteristics, the first number corresponding to the second order, and transmit the second information via the transmission medium.

- 5 20. A system for receiving information transmitted via a transmission medium, comprising a receiving station configured to receive first information via the transmission medium, the first information being represented and transmitted using a first number of signal characteristics, convert representation of the first information to a first number system of a first order, the first order corresponding to the first number, and convert the first
10 information to second information, the second information being represented according to a second number system of a second order, the second order being less than the first order.